09/578,693
updated Search
L/Cook 10/20/06.

d his

(FILE 'HOME' ENTERED AT 17:35:00 ON 20 OCT 2006)

FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, JAPIO' ENTERED AT 17:35:36 ON 20 OCT 2006

L1	1438	S (LIVER? FATTY ACID BINDING PROTEIN)
L2	20	S L1 AND URINE?
L3	58	S L1 AND KIDNEY
L4	16	S L2 AND L3
L5	11	DUPLICATE REMOVE L4 (5 DUPLICATES REMOVED)
L6	12	DUPLICATE REMOVE L2 (8 DUPLICATES REMOVED)
L7	1	S L6 NOT L5
L8	33	DUPLICATE REMOVE L3 (25 DUPLICATES REMOVED)
L9	22	S L8 NOT L5
L10	728	S (HEME BINDING PROTEIN)
L11	7	S L10 AND URINE?
L12	20	S L10 AND KIDNEY?
L13	2	DUPLICATE REMOVE L11 (5 DUPLICATES REMOVED)
L14	9	DUPLICATE REMOVE L12 (11 DUPLICATES REMOVED)

=>

```
d his

     (FILE 'HOME' ENTERED AT 17:35:00 ON 20 OCT 2006)

     FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, JAPIO' ENTERED AT 17:35:36 ON 20
     OCT 2006
L1          1438 S (LIVER? FATTY ACID BINDING PROTEIN)
L2            20 S L1 AND URINE?
L3            58 S L1 AND KIDNEY
L4            16 S L2 AND L3
L5            11 DUPLICATE REMOVE L4 (5 DUPLICATES REMOVED)
L6            12 DUPLICATE REMOVE L2 (8 DUPLICATES REMOVED)
L7             1 S L6 NOT L5
L8            33 DUPLICATE REMOVE L3 (25 DUPLICATES REMOVED)
L9            22 S L8 NOT L5
L10          728 S (HEME BINDING PROTEIN)
L11            7 S L10 AND URINE?
L12           20 S L10 AND KIDNEY?
L13            2 DUPLICATE REMOVE L11 (5 DUPLICATES REMOVED)
L14            9 DUPLICATE REMOVE L12 (11 DUPLICATES REMOVED)

=>
```

ANSWER 11 OF 22 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN

AN 1989:182961 BIOSIS

DN PREV198987094227; BA87:94227

TI IMMUNOCHEMICAL QUANTITATION OF FATTY-ACID-BINDING PROTEINS I. TISSUE AND INTRACELLULAR DISTRIBUTION POSTNATAL DEVELOPMENT AND INFLUENCE OF PHYSIOLOGICAL CONDITIONS ON RAT HEART AND LIVER FABP.

AU PAULUSSEN R J A [Reprint author]; GEELEN M J H; BEYNEN A C; VEERKAMP J H

CS DEP BIOCHEM, UNIV NIJMEGEN, PO BOX 9101, 6500 HB NIJMEGEN, NETHERLANDS

SO Biochimica et Biophysica Acta, (1989) Vol. 1001, No. 2, pp. 201-209. CODEN: BBACAQ. ISSN: 0006-3002.

DT Article

FS BA

LA ENGLISH

ED Entered STN: 9 Apr 1989
Last Updated on STN: 9 Apr 1989

AB Antisera against rat heart and liver fatty acid-binding protein (FABP) were applied in Western blotting analysis and ELISA to assess their tissue and intracellular distribution, and the influence of development, physiological conditions and several agents on the FABP content of tissue cytosols. The data obtained are compared with the oleic acid-binding capacity. Heart FABP is found in high concentrations in heart, skeletal muscles, diaphragm and lung, and in lower concentrations in kidney , brain and spleen, whereas liver FABP is limited to liver and intestine. In heart and liver, FABP is only present in the cytosol. The FABP content of both heart and liver shows a progressive increase during the first weeks of postnatal development, in contrast to their constant oleic acid-binding capacity. The reciprocally declining α-fetoprotein content of both tissues may partially account for the complementary fraction of the fatty acid-binding capacity. The FABP content and the fatty acid-binding capacity of adult heart and liver were in good accordance under various physiological conditions. Addition of clofibrate to the diet induces an increase of liver FABP content, whereas feeding of cholesterol, cholestyramine, mevinolin or cholate caused a marked decrease. The significance of the combined determination of fatty acid-binding capacity and FABP content (by immunochemical quantitation and blotting analysis) is indicated.

CC Microscopy - Histology and histochemistry 01056
Cytology - Animal 02506
Biochemistry studies - General 10060
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Lipids 10066
Anatomy and Histology - Microscopic and ultramicroscopic anatomy 11108
Metabolism - Lipids 13006
Metabolism - Proteins, peptides and amino acids 13012
Nutrition - General dietary studies 13214
Nutrition - Sterols and steroids 13226
Digestive system - Physiology and biochemistry 14004
Cardiovascular system - Physiology and biochemistry 14504
Development and Embryology - Morphogenesis 25508
Immunology - General and methods 34502

IT Major Concepts
Cardiovascular System (Transport and Circulation); Cell Biology; Development; Digestive System (Ingestion and Assimilation); Metabolism; Morphology; Nutrition

IT Miscellaneous Descriptors
LIPID METABOLISM OLEIC ACID ALPHA FETOPROTEIN DIET CLOFIBRATE CHOLESTEROL CHOLESTYRAMINE MEVINOLIN CHOLATE

ORGN Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes

ANSWER 11 OF 22 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN

AN 1989:182961 BIOSIS

DN PREV198987094227; BA87:94227

TI IMMUNOCHEMICAL QUANTITATION OF FATTY-ACID-BINDING PROTEINS I. TISSUE AND INTRACELLULAR DISTRIBUTION POSTNATAL DEVELOPMENT AND INFLUENCE OF PHYSIOLOGICAL CONDITIONS ON RAT HEART AND LIVER FABP.

AU PAULUSSEN R J A [Reprint author]; GEELEN M J H; BEYNEN A C; VEERKAMP J H

CS DEP BIOCHEM, UNIV NIJMEGEN, PO BOX 9101, 6500 HB NIJMEGEN, NETHERLANDS

SO Biochimica et Biophysica Acta, (1989) Vol. 1001, No. 2, pp. 201-209. CODEN: BBACAQ. ISSN: 0006-3002.

DT Article

FS BA

LA ENGLISH

ED Entered STN: 9 Apr 1989
Last Updated on STN: 9 Apr 1989

AB Antisera against rat heart and liver fatty acid-binding protein (FABP) were applied in Western blotting analysis and ELISA to assess their tissue and intracellular distribution, and the influence of development, physiological conditions and several agents on the FABP content of tissue cytosols. The data obtained are compared with the oleic acid-binding capacity. Heart FABP is found in high concentrations in heart, skeletal muscles, diaphragm and lung, and in lower concentrations in kidney , brain and spleen, whereas liver FABP is limited to liver and intestine. In heart and liver, FABP is only present in the cytosol. The FABP content of both heart and liver shows a progressive increase during the first weeks of postnatal development, in contrast to their constant oleic acid-binding capacity. The reciprocally declining α-fetoprotein content of both tissues may partially account for the complementary fraction of the fatty acid-binding capacity. The FABP content and the fatty acid-binding capacity of adult heart and liver were in good accordance under various physiological conditions. Addition of clofibrate to the diet induces an increase of liver FABP content, whereas feeding of cholesterol, cholestyramine, mevinolin or cholate caused a marked decrease. The significance of the combined determination of fatty acid-binding capacity and FABP content (by immunochemical quantitation and blotting analysis) is indicated.

CC Microscopy - Histology and histochemistry 01056
Cytology - Animal 02506
Biochemistry studies - General 10060
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Lipids 10066
Anatomy and Histology - Microscopic and ultramicroscopic anatomy 11108
Metabolism - Lipids 13006
Metabolism - Proteins, peptides and amino acids 13012
Nutrition - General dietary studies 13214
Nutrition - Sterols and steroids 13226
Digestive system - Physiology and biochemistry 14004
Cardiovascular system - Physiology and biochemistry 14504
Development and Embryology - Morphogenesis 25508
Immunology - General and methods 34502

IT Major Concepts
Cardiovascular System (Transport and Circulation); Cell Biology; Development; Digestive System (Ingestion and Assimilation); Metabolism; Morphology; Nutrition

IT Miscellaneous Descriptors
LIPID METABOLISM OLEIC ACID ALPHA FETOPROTEIN DIET CLOFIBRATE CHOLESTEROL CHOLESTYRAMINE MEVINOLIN CHOLATE

ORGN Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes

Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

RN 112-80-1 (OLEIC ACID)
637-07-0 (CLOFIBRATE)
57-88-5 (CHOLESTEROL)
11041-12-6 (CHOLESTYRAMINE)
75330-75-5 (MEVINOLIN)
81-25-4 (CHOLATE)

Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

RN 112-80-1 (OLEIC ACID)
637-07-0 (CLOFIBRATE)
57-88-5 (CHOLESTEROL)
11041-12-6 (CHOLESTYRAMINE)
75330-75-5 (MEVINOLIN)
81-25-4 (CHOLATE)

ANSWER 8 OF 22 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
AN 1990:235569 BIOSIS
DN PREV199089122522; BA89:122522
TI IMMUNOCHEMICAL QUANTITATION OF FATTY ACID-BINDING PROTEINS TISSUE DISTRIBUTION OF LIVER AND HEART FABP TYPES IN HUMAN AND PORCINE TISSUES.
AU PAULUSSEN R J A [Reprint author]; VAN MOERKERK H T B; VEERKAMP J H
CS DEP BIOCHEMISTRY, UNIV NIJMEGEN, THE NETHERLANDS
SO International Journal of Biochemistry, (1990) Vol. 22, No. 4, pp. 393-398.
CODEN: IJBOBV. ISSN: 0020-711X.
DT Article
FS BA
LA ENGLISH
ED Entered STN: 19 May 1990
Last Updated on STN: 19 May 1990
AB 1. Antisera against heart and liver fatty acid-binding proteins (FABPs) were used in enzyme-linked immunosorbent assay to study the cross-reactivity between these FABP types of man, pig and rat, and to assess their tissue distribution in man and pig. 2. No cross-reactivities were found of heart FABPs with anti-liver FABP sera and vice versa. With the liver FABPs, marked species differences were found, but the three proteins are clearly related. Human and pig heart FABP are immunochemically closer related to each other than to this protein from rat heart. 3. The tissue distribution of the heart and liver FABP types is similar in man, pig and rat. Liver FABP is only found in liver and intestine, and heart FABP is present in heart, skeletal muscle, kidney, lung, brain and placenta. 4. Cardiac FABP is also found in cultured human and rat endothelial cells. 5. The FABP content content of human and pig liver is comparable to that of rat liver, but the tissue concentrations of heart FABP are lower in man and pig than in rat. When the latter values are expressed relative to the FABP content in heart, analogous distribution patterns are observed in man, pig and rat.
CC Comparative biochemistry 10010
Biochemistry methods - Proteins, peptides and amino acids 10054
Biochemistry methods - Lipids 10056
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Lipids 10066
Enzymes - Methods 10804
Physiology - Comparative 12003
Digestive system - Physiology and biochemistry 14004
Cardiovascular system - Physiology and biochemistry 14504
Immunology - General and methods 34502
IT Major Concepts
Biochemistry and Molecular Biophysics; Cardiovascular System (Transport and Circulation); Digestive System (Ingestion and Assimilation); Physiology
IT Miscellaneous Descriptors
RAT ELISA
ORGN Classifier
Suidae 85740
Super Taxa
Artiodactyla; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes
Animals, Artiodactyls, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Vertebrates
ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates
ORGN Classifier
Muridae 86375
Super Taxa

ANSWER 8 OF 22 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
AN 1990:235569 BIOSIS
DN PREV199089122522; BA89:122522
TI IMMUNOCHEMICAL QUANTITATION OF FATTY ACID-BINDING PROTEINS TISSUE DISTRIBUTION OF LIVER AND HEART FABP TYPES IN HUMAN AND PORCINE TISSUES.
AU PAULUSSEN R J A [Reprint author]; VAN MOERKERK H T B; VEERKAMP J H
CS DEP BIOCHEMISTRY, UNIV NIJMEGEN, THE NETHERLANDS
SO International Journal of Biochemistry, (1990) Vol. 22, No. 4, pp. 393-398.
CODEN: IJBOBV. ISSN: 0020-711X.
DT Article
FS BA
LA ENGLISH
ED Entered STN: 19 May 1990
Last Updated on STN: 19 May 1990
AB 1. Antisera against heart and liver fatty acid-binding proteins (FABPs) were used in enzyme-linked immunosorbent assay to study the cross-reactivity between these FABP types of man, pig and rat, and to assess their tissue distribution in man and pig. 2. No cross-reactivities were found of heart FABPs with anti-liver FABP sera and vice versa. With the liver FABPs, marked species differences were found, but the three proteins are clearly related. Human and pig heart FABP are immunochemically closer related to each other than to this protein from rat heart. 3. The tissue distribution of the heart and liver FABP types is similar in man, pig and rat. Liver FABP is only found in liver and intestine, and heart FABP is present in heart, skeletal muscle, kidney, lung, brain and placenta. 4. Cardiac FABP is also found in cultured human and rat endothelial cells. 5. The FABP content content of human and pig liver is comparable to that of rat liver, but the tissue concentrations of heart FABP are lower in man and pig than in rat. When the latter values are expressed relative to the FABP content in heart, analogous distribution patterns are observed in man, pig and rat.
CC Comparative biochemistry 10010
Biochemistry methods - Proteins, peptides and amino acids 10054
Biochemistry methods - Lipids 10056
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Lipids 10066
Enzymes - Methods 10804
Physiology - Comparative 12003
Digestive system - Physiology and biochemistry 14004
Cardiovascular system - Physiology and biochemistry 14504
Immunology - General and methods 34502
IT Major Concepts
Biochemistry and Molecular Biophysics; Cardiovascular System (Transport and Circulation); Digestive System (Ingestion and Assimilation); Physiology
IT Miscellaneous Descriptors
RAT ELISA
ORGN Classifier
Suidae 85740
Super Taxa
Artiodactyla; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes
Animals, Artiodactyls, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Vertebrates
ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates
ORGN Classifier
Muridae 86375
Super Taxa

Rodentia; Mammalia; Vertebrata; Chordata; Animalia

Taxa Notes

Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

Rodentia; Mammalia; Vertebrata; Chordata; Animalia

Taxa Notes

Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

ANSWER 6 OF 22 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
AN 1996:33427 BIOSIS
DN PREV199698605562
TI Purification, characterization, and cloning of a heme-binding protein (23 kDa) in rat liver cytosol.
AU Iwahara, Shin-Ichiro; Satoh, Hiroyuki; Song, De-Xiu; Webb, James; Burlingame, Alma L.; Nagae, Yasuhiro; Muller-Eberhard, Ursula [Reprint author]
CS 525 East 68th St., Room N-804, New York, NY 10021, USA
SO Biochemistry, (1995) Vol. 34, No. 41, pp. 13398-13406.
CODEN: BICHAW. ISSN: 0006-2960.
DT Article
LA English
ED Entered STN: 26 Jan 1996
Last Updated on STN: 27 Jan 1996
AB A, heme-binding protein (designated HBP23) has been purified from rat liver cytosol using heme-affinity chromatography and either reverse-phase high-performance liquid chromatography or sequential ion-exchange chromatography. The protein (23 kDa) binds heme with an affinity (K-d = 55 nM) higher than that of the abundant cytosolic heme-binding proteins. heme-binding protein (HBP)/liver fatty acid-binding protein (L-FABP) and the glutathione S-transferases (GSTs) (K-d = 100-200 nM). HBP23 is present in the cytosol of liver, kidney, spleen, small intestine, and heart, with the liver showing the highest content. A cDNA coding the 23-kDa protein was cloned using reverse transcription polymerase chain reaction with degenerative oligonucleotides derived from partial amino acid sequences. The cloned cDNA encoded 199 amino acids, and its amino acid sequence showed no homology to HBP/L-FABP, GSTs, or any other heme-binding proteins or hemeproteins. Homology search showed that HBP23 is highly homologous to mouse macrophage 23-kDa stress protein, which is inducible by oxidant stress in peritoneal macrophages (Ishii, T., Yamada. M., Sato, H., Matsue, M., Taketani. S., Nakayama, K., Sugita, Y., and Bannai, S. (1993) J. Biol.Chemical 268. 18633-18636). Thioredoxin peroxidase as well as HBP23 and the mouse macrophage 23-kDa stress protein are members of the peroxiredoxin family, a recently recognized class of antioxidant proteins (Chae, H. Z., Chung, S. J., and Rhee, S. G. (1994) J. Biol. Chemical 269, 27670-276781. An increase in HBP23 mRNA was observed in Hepa 1-6 cells after treatment with heme and cadmium and during liver regeneration after partial hepatectomy. These findings indicate an involvement of HBP23 in heme metabolism.
CC Cytology - Animal 02506
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Lipids 10066
Biochemistry studies - Minerals 10069
Biophysics - Molecular properties and macromolecules 10506
Enzymes - Chemical and physical 10806
Digestive system - Physiology and biochemistry 14004
IT Major Concepts
Biochemistry and Molecular Biophysics; Cell Biology; Digestive System (Ingestion and Assimilation); Enzymology (Biochemistry and Molecular Biophysics)
IT Chemicals & Biochemicals
GLUTATHIONE S-TRANSFERASE; HEME
IT Miscellaneous Descriptors
GLUTATHIONE S-TRANSFERASE; HEME METABOLISM; LIVER FATTY ACID-BINDING PROTEIN
ORGN Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
Muridae
Taxa Notes

ANSWER 6 OF 22 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
AN 1996:33427 BIOSIS
DN PREV199698605562
TI Purification, characterization, and cloning of a heme-binding protein (23 kDa) in rat liver cytosol.
AU Iwahara, Shin-Ichiro; Satoh, Hiroyuki; Song, De-Xiu; Webb, James; Burlingame, Alma L.; Nagae, Yasuhiro; Muller-Eberhard, Ursula [Reprint author]
CS 525 East 68th St., Room N-804, New York, NY 10021, USA
SO Biochemistry, (1995) Vol. 34, No. 41, pp. 13398-13406.
CODEN: BICHAW. ISSN: 0006-2960.
DT Article
LA English
ED Entered STN: 26 Jan 1996
Last Updated on STN: 27 Jan 1996
AB A, heme-binding protein (designated HBP23) has been purified from rat liver cytosol using heme-affinity chromatography and either reverse-phase high-performance liquid chromatography or sequential ion-exchange chromatography. The protein (23 kDa) binds heme with an affinity (K-d = 55 nM) higher than that of the abundant cytosolic heme-binding proteins. heme-binding protein (HBP)/liver fatty acid-binding protein (L-FABP) and the glutathione S-transferases (GSTs) (K-d = 100-200 nM). HBP23 is present in the cytosol of liver, kidney, spleen, small intestine, and heart, with the liver showing the highest content. A cDNA coding the 23-kDa protein was cloned using reverse transcription polymerase chain reaction with degenerative oligonucleotides derived from partial amino acid sequences. The cloned cDNA encoded 199 amino acids, and its amino acid sequence showed no homology to HBP/L-FABP, GSTs, or any other heme-binding proteins or hemeproteins. Homology search showed that HBP23 is highly homologous to mouse macrophage 23-kDa stress protein, which is inducible by oxidant stress in peritoneal macrophages (Ishii, T., Yamada. M., Sato, H., Matsue, M., Taketani. S., Nakayama, K., Sugita, Y., and Bannai, S. (1993) J. Biol.Chemical 268. 18633-18636). Thioredoxin peroxidase as well as HBP23 and the mouse macrophage 23-kDa stress protein are members of the peroxiredoxin family, a recently recognized class of antioxidant proteins (Chae, H. Z., Chung, S. J., and Rhee, S. G. (1994) J. Biol. Chemical 269, 27670-276781. An increase in HBP23 mRNA was observed in Hepa 1-6 cells after treatment with heme and cadmium and during liver regeneration after partial hepatectomy. These findings indicate an involvement of HBP23 in heme metabolism.
CC Cytology - Animal 02506
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Lipids 10066
Biochemistry studies - Minerals 10069
Biophysics - Molecular properties and macromolecules 10506
Enzymes - Chemical and physical 10806
Digestive system - Physiology and biochemistry 14004
IT Major Concepts
Biochemistry and Molecular Biophysics; Cell Biology; Digestive System (Ingestion and Assimilation); Enzymology (Biochemistry and Molecular Biophysics)
IT Chemicals & Biochemicals
GLUTATHIONE S-TRANSFERASE; HEME
IT Miscellaneous Descriptors
GLUTATHIONE S-TRANSFERASE; HEME METABOLISM; LIVER FATTY ACID-BINDING PROTEIN
ORGN Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
Muridae
Taxa Notes

Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

RN 50812-37-8 (GLUTATHIONE S-TRANSFERASE)
14875-96-8 (HEME)

Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

RN 50812-37-8 (GLUTATHIONE S-TRANSFERASE)
14875-96-8 (HEME)

ANSWER 1 OF 2 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
DUPLICATE 1
AN 1999:12819 BIOSIS
DN PREV199900012819
TI Molecular characterization of a newly identified heme-binding protein induced during differentiation of urine erythroleukemia cells.
AU Taketani, Shigeru [Reprint author]; Adachi, Yasushi; Kohno, Hirao; Ikehara, Susumu; Tokunaga, Rikio; Ishii, Tetsuro
CS Dep. Hygiene, Kansai Med. Univ., Moriguchi, Osaka 570-8506, Japan
SO Journal of Biological Chemistry, (Nov. 20, 1998) Vol. 273, No. 47, pp. 31388-31394. print.
CODEN: JBCHA3. ISSN: 0021-9258.
DT Article
LA English
ED Entered STN: 11 Jan 1999
Last Updated on STN: 11 Jan 1999
AB A heme-binding protein with a molecular mass of 22 kDa, termed p22 HBP, was purified from mouse liver cytosol, using blue Sepharose CL-6B. We identified a cDNA encoding p22 HBP, and sequence analysis revealed that p22 HBP comprises 190 amino acid residues (Mr 21,063) and has no homology to any other known heme-binding protein. The p22 HBP mRNA (apprx1.0 kilobases) is ubiquitously expressed in various tissues and is extremely abundant in the liver. cDNA allows for expression of active p22 HBP, with a high affinity for 55Fe-hemin, with a Kd of 26 +- 1.8 nM. The Bmax of hemin binding to p22 HBP was 0.55 +- 0.021 mol/mol of protein, a value consistent with one heme molecule binding per molecule of protein. The order of potency of different ligands to compete against 55Fe-hemin binding to p22 HBP was hemin = protoporphyrin IX > coproporphyrin III > bilirubin > palmitic acid > all-trans-retinoic acid. Treatment of mouse erythroleukemia (MEL) cells with dimethyl sulfoxide or hemin resulted in an increase in p22 HBP mRNA. The immunoblot analysis showed that p22 HBP increased with time in dimethyl sulfoxide- and hemin-induced MEL cells. Conversely, transfer of antisense oligonucleotides to p22 HBP cDNA resulted in a decrease of p22 HBP in dimethyl sulfoxide-treated MEL cells, and the heme content in these cells decreased to 66-71% of sense oligonucleotides-transferred cells. Thus, this newly identified heme-binding protein, p22 HBP, may be involved in heme utilization for hemoprotein synthesis and even be coupled to hemoglobin synthesis during erythroid differentiation.
CC Biochemistry methods - General 10050
Genetics - Animal 03506
Biochemistry studies - General 10060
Digestive system - General and methods 14001
Blood - General and methods 15001
General biology - Miscellaneous 00532
IT Major Concepts
Methods and Techniques; Molecular Genetics (Biochemistry and Molecular Biophysics)
IT Parts, Structures, & Systems of Organisms
erythroleukemia cell: blood and lymphatics, differentiation; liver cytosol: digestive system
IT Chemicals & Biochemicals
heme-binding protein: identification, molecular characterization, purification; mouse HBP gene: isolation, sequencing
IT Methods & Equipment
amino acid sequencing: characterization method, sequencing techniques; immunoblot: detection method, detection/labeling techniques; transfection: gene expression/vector techniques, genetic method; Northern blot: Recombinant DNA Technology, molecular probe techniques, gene mapping, genetic method, detection/labeling techniques
ORGN Classifier

ANSWER 1 OF 2 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
DUPLICATE 1
AN 1999:12819 BIOSIS
DN PREV199900012819
TI Molecular characterization of a newly identified heme-binding protein induced during differentiation of urine erythroleukemia cells.
AU Taketani, Shigeru [Reprint author]; Adachi, Yasushi; Kohno, Hirao; Ikehara, Susumu; Tokunaga, Rikio; Ishii, Tetsuro
CS Dep. Hygiene, Kansai Med. Univ., Moriguchi, Osaka 570-8506, Japan
SO Journal of Biological Chemistry, (Nov. 20, 1998) Vol. 273, No. 47, pp. 31388-31394. print.
CODEN: JBCHA3. ISSN: 0021-9258.
DT Article
LA English
ED Entered STN: 11 Jan 1999
Last Updated on STN: 11 Jan 1999
AB A heme-binding protein with a molecular mass of 22 kDa, termed p22 HBP, was purified from mouse liver cytosol, using blue Sepharose CL-6B. We identified a cDNA encoding p22 HBP, and sequence analysis revealed that p22 HBP comprises 190 amino acid residues (Mr 21,063) and has no homology to any other known heme-binding protein. The p22 HBP mRNA (apprx1.0 kilobases) is ubiquitously expressed in various tissues and is extremely abundant in the liver. cDNA allows for expression of active p22 HBP, with a high affinity for 55Fe-hemin, with a Kd of 26 +- 1.8 nM. The Bmax of hemin binding to p22 HBP was 0.55 +- 0.021 mol/mol of protein, a value consistent with one heme molecule binding per molecule of protein. The order of potency of different ligands to compete against 55Fe-hemin binding to p22 HBP was hemin = protoporphyrin IX > coproporphyrin III > bilirubin > palmitic acid > all-trans-retinoic acid. Treatment of mouse erythroleukemia (MEL) cells with dimethyl sulfoxide or hemin resulted in an increase in p22 HBP mRNA. The immunoblot analysis showed that p22 HBP increased with time in dimethyl sulfoxide- and hemin-induced MEL cells. Conversely, transfer of antisense oligonucleotides to p22 HBP cDNA resulted in a decrease of p22 HBP in dimethyl sulfoxide-treated MEL cells, and the heme content in these cells decreased to 66-71% of sense oligonucleotides-transferred cells. Thus, this newly identified heme-binding protein, p22 HBP, may be involved in heme utilization for hemoprotein synthesis and even be coupled to hemoglobin synthesis during erythroid differentiation.
CC Biochemistry methods - General 10050
Genetics - Animal 03506
Biochemistry studies - General 10060
Digestive system - General and methods 14001
Blood - General and methods 15001
General biology - Miscellaneous 00532
IT Major Concepts
Methods and Techniques; Molecular Genetics (Biochemistry and Molecular Biophysics)
IT Parts, Structures, & Systems of Organisms
erythroleukemia cell: blood and lymphatics, differentiation; liver cytosol: digestive system
IT Chemicals & Biochemicals
heme-binding protein: identification, molecular characterization, purification; mouse HBP gene: isolation, sequencing
IT Methods & Equipment
amino acid sequencing: characterization method, sequencing techniques; immunoblot: detection method, detection/labeling techniques; transfection: gene expression/vector techniques, genetic method; Northern blot: Recombinant DNA Technology, molecular probe techniques, gene mapping, genetic method, detection/labeling techniques
ORGN Classifier

Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
mouse
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
mouse
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

ANSWER 6 OF 9 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
DUPLICATE 1
AN 1996:33427 BIOSIS
DN PREV199698605562
TI Purification, characterization, and cloning of a heme-binding protein (23 kDa) in rat liver cytosol.
AU Iwahara, Shin-Ichiro; Satoh, Hiroyuki; Song, De-Xiu; Webb, James; Burlingame, Alma L.; Nagae, Yasuhiro; Muller-Eberhard, Ursula [Reprint author]
CS 525 East 68th St., Room N-804, New York, NY 10021, USA
SO Biochemistry, (1995) Vol. 34, No. 41, pp. 13398-13406.
CODEN: BICHAW. ISSN: 0006-2960.
DT Article
LA English
ED Entered STN: 26 Jan 1996
Last Updated on STN: 27 Jan 1996
AB A, heme-binding protein (designated HBP23) has been purified from rat liver cytosol using heme-affinity chromatography and either reverse-phase high-performance liquid chromatography or sequential ion-exchange chromatography. The protein (23 kDa) binds heme with an affinity (K-d = 55 nM) higher than that of the abundant cytosolic heme-binding proteins. heme-binding protein (HBP)/liver fatty acid-binding protein (L-FABP) and the glutathione S-transferases (GSTs) (K-d = 100-200 nM). HBP23 is present in the cytosol of liver, kidney, spleen, small intestine, and heart, with the liver showing the highest content. A cDNA coding the 23-kDa protein was cloned using reverse transcription polymerase chain reaction with degenerative oligonucleotides derived from partial amino acid sequences. The cloned cDNA encoded 199 amino acids, and its amino acid sequence showed no homology to HBP/L-FABP, GSTs, or any other heme-binding proteins or hemeproteins. Homology search showed that HBP23 is highly homologous to mouse macrophage 23-kDa stress protein, which is inducible by oxidant stress in peritoneal macrophages (Ishii, T., Yamada. M., Sato, H., Matsue, M., Taketani. S., Nakayama, K., Sugita, Y., and Bannai, S. (1993) J. Biol.Chemical 268. 18633-18636). Thioredoxin peroxidase as well as HBP23 and the mouse macrophage 23-kDa stress protein are members of the peroxiredoxin family, a recently recognized class of antioxidant proteins (Chae, H. Z., Chung, S. J., and Rhee, S. G. (1994) J. Biol. Chemical 269, 27670-276781. An increase in HBP23 mRNA was observed in Hepa 1-6 cells after treatment with heme and cadmium and during liver regeneration after partial hepatectomy. These findings indicate an involvement of HBP23 in heme metabolism.
CC Cytology - Animal 02506
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Lipids 10066
Biochemistry studies - Minerals 10069
Biophysics - Molecular properties and macromolecules 10506
Enzymes - Chemical and physical 10806
Digestive system - Physiology and biochemistry 14004
IT Major Concepts
Biochemistry and Molecular Biophysics; Cell Biology; Digestive System (Ingestion and Assimilation); Enzymology (Biochemistry and Molecular Biophysics)
IT Chemicals & Biochemicals
GLUTATHIONE S-TRANSFERASE; HEME
IT Miscellaneous Descriptors
GLUTATHIONE S-TRANSFERASE; HEME METABOLISM; LIVER FATTY ACID-BINDING PROTEIN
ORGN Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name

ANSWER 6 OF 9 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
DUPLICATE 1
AN 1996:33427 BIOSIS
DN PREV199698605562
TI Purification, characterization, and cloning of a heme-binding protein (23 kDa) in rat liver cytosol.
AU Iwahara, Shin-Ichiro; Satoh, Hiroyuki; Song, De-Xiu; Webb, James; Burlingame, Alma L.; Nagae, Yasuhiro; Muller-Eberhard, Ursula [Reprint author]
CS 525 East 68th St., Room N-804, New York, NY 10021, USA
SO Biochemistry, (1995) Vol. 34, No. 41, pp. 13398-13406.
CODEN: BICHAW. ISSN: 0006-2960.
DT Article
LA English
ED Entered STN: 26 Jan 1996
Last Updated on STN: 27 Jan 1996
AB A, heme-binding protein (designated HBP23) has been purified from rat liver cytosol using heme-affinity chromatography and either reverse-phase high-performance liquid chromatography or sequential ion-exchange chromatography. The protein (23 kDa) binds heme with an affinity (K-d = 55 nM) higher than that of the abundant cytosolic heme-binding proteins. heme-binding protein (HBP)/liver fatty acid-binding protein (L-FABP) and the glutathione S-transferases (GSTs) (K-d = 100-200 nM). HBP23 is present in the cytosol of liver, kidney, spleen, small intestine, and heart, with the liver showing the highest content. A cDNA coding the 23-kDa protein was cloned using reverse transcription polymerase chain reaction with degenerative oligonucleotides derived from partial amino acid sequences. The cloned cDNA encoded 199 amino acids, and its amino acid sequence showed no homology to HBP/L-FABP, GSTs, or any other heme-binding proteins or hemeproteins. Homology search showed that HBP23 is highly homologous to mouse macrophage 23-kDa stress protein, which is inducible by oxidant stress in peritoneal macrophages (Ishii, T., Yamada. M., Sato, H., Matsue, M., Taketani. S., Nakayama, K., Sugita, Y., and Bannai, S. (1993) J. Biol.Chemical 268. 18633-18636). Thioredoxin peroxidase as well as HBP23 and the mouse macrophage 23-kDa stress protein are members of the peroxiredoxin family, a recently recognized class of antioxidant proteins (Chae, H. Z., Chung, S. J., and Rhee, S. G. (1994) J. Biol. Chemical 269, 27670-276781. An increase in HBP23 mRNA was observed in Hepa 1-6 cells after treatment with heme and cadmium and during liver regeneration after partial hepatectomy. These findings indicate an involvement of HBP23 in heme metabolism.
CC Cytology - Animal 02506
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Lipids 10066
Biochemistry studies - Minerals 10069
Biophysics - Molecular properties and macromolecules 10506
Enzymes - Chemical and physical 10806
Digestive system - Physiology and biochemistry 14004
IT Major Concepts
Biochemistry and Molecular Biophysics; Cell Biology; Digestive System (Ingestion and Assimilation); Enzymology (Biochemistry and Molecular Biophysics)
IT Chemicals & Biochemicals
GLUTATHIONE S-TRANSFERASE; HEME
IT Miscellaneous Descriptors
GLUTATHIONE S-TRANSFERASE; HEME METABOLISM; LIVER FATTY ACID-BINDING PROTEIN
ORGN Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name

Muridae
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates
RN 50812-37-8 (GLUTATHIONE S-TRANSFERASE)
14875-96-8 (HEME)

Muridae
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates
RN 50812-37-8 (GLUTATHIONE S-TRANSFERASE)
14875-96-8 (HEME)